USSR

GOLOSNITSKIY, A. K., et al., Veterinariya, No 4, 1973, p 102

cholinesterase were decreased by 86%, and gradually rose to normal on treatment. The intoxication was apparently due to high body concentrations of chlorophos as a result of inhalation of the vapors.

USSR

UDC 621.371.332.4

FILIPP, N. D., PATOKOV, L. F., NASYROV, A. M., and KHACHATUROV, A. I.

"Scattering of UHF Waves by H_E Heterogeneities"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 1 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 1--collection of works) "Nauka," 1972 pp 518-522 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A350)

Translation: Scattering of UHF (at frequencies of 44 and 74 MHz) by H_E nonuniformities is analyzed over a range of 1500 km. Two types of amplitude-time dependences of H_E reflections are detected: flash and quasi-continuous. It is assumed that the flash signals are of meteoric origin. The nature of the quasi-continuous signals remains vague. Five illustrations, bibliography of four. A. L.

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USSR

UDC 577.1:615.7/9

FILIPPENKO, G. V.

"The State of the Blood Sulfhydryl Groups in the Case of Poisoning With Barium Carbonate"

V sb. Materialy 34 Itog. sessii CHO im. N. I. Pirogova, III Mezhvuz. konf. Transplantatsiya organov i tkaney, Mezhvuz, konf. Probl. nevrozov (Papers presented at 34th Summarizing Session of SNO [Expansion Unknown) imeni N. I. Pirogov, Third Interuniversity Conference on Transplantation of Organs and Tissues, Interuniversity Conference on Problems of Neuroses), Moscow, 1972, pp 52-54 (from Referativnyy Zhurnal -- Biologicheskaya Khimiya, Otdel'nyy Vypusk, No 2, 1973, Abstract No 2F2113 by D. M. Glukharev)

Translation: Rats were poisoned daily with 1 or 3-5 mg barium carbonate (I) per m^3 of air for 4 months. The concentration of SH-groups in blood of rats received 1 mg I/m^3 practically did not change at the end of 4 months period (it was 63.5 mg % compared with 61.5 mg % for controls). But when the concentration of I was 3-5 mg/m^3 the amount of SH-groups increased to 75.7 mg % in the presence of a lowered concentration of the blood protein.
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1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HYDROGENATION OF PHENOL IN A PHENOL CYCLOHEXANONE CYCLOHEXANOL MIXTURE AND THE LIQUID PHASE PREPARATION OF CYCLOHEXANOL OVER RANEY
AUTHOR-(03)-FILIPPENKO, L.K., BELONOGOV, K.N., GOSTIKIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(3), 441-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHENOL, CYCLOHEXANONE, CYCLOHEXANOL, CATALYTIC HYDROGENATION, NICKEL, KINETIC EQUATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1102 STEP NO--UR/0153/70/013/003/0441/0442

CIRC ACCESSION NO--AT0134738

UNCLASSIFIED

2/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AT0134788
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM KINETIC EQUATIONS FOR THE REACTIONS OF PHOH, CYCLOHEXANONE (I), AND CYCLOHEXANOL OVER RANEY NI IN AN ATM. OF H, AN EXPRESSION IS DEVELOPED EVALUATING THE PRODUCTION OF I FROM PHOH. AT 150DEGREES AND A CONCN. OF I OF 30-40PERCENT IN THE MIXT., A PRODUCTIVITY OF 200 KG PHOH-HR PER M PRIME3 OF REACTOR VOL. MAY BE ACHIEVED. FACILITY: IVANOV, KHIM. TEKHNOL. INST., IVANOVO, USSR.

UNCLASSIFIED

2

UDC 616.988-614.4

USSR

RETINA, T. N., POVALISHINA, T. P., MARTSINKEVICH, Ch. I., VASYUTA, Yu. S., KLUG, L. S., and FILIPPENKOVA, Ye. D., Republic Sanitary Epidemiological Station of the Bashkir SSR, Institute of Poliomyelitis and Viral Encephalitides of the USSR Academy of Medical Sciences, Main Sanitary Epidemiology Administration, of the RSFSR Ministry of Health, and the Ufa City Sanitary Epidemiological Station

"Epidemiological Analysis of Hemorrhagic Fever Diseases With a Renal Syndrome Observed in Health Institutions in the City of Ufa"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 1, Jan/Feb 71, pp 74-76

Abstract: The 1964-1965 epidemic of hemorrhagic fever with a renal syndrome in the Bashkir ASSR was thoroughly analyzed to elucidate the source and route of infection. A total of 99 cases of the disease were recorded in the resort city of Ufa among students, employees, and tourists: 11 cases in the pioneer camp, 13 in the Sanitary Forest School, 34 in the Children's Tuberculosis Sanatorium, and 41 cases at the rest home. During

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USSR

RETINA, T. N., et al., Kazanskiy Meditsinskiy Zhurnal, No 1, Jan/Feb 71, pp 74-76

the epidemic, the Ufa region was infested with rodents; field and house mice and voles were found in attics and basements and under porches of poorly constructed houses and in the forest. The pathogen was transmitted mainly through the air to individuals who breathed air with dust-containing particles emitted by infected rodents. This included persons working within buildings, sleeping in tents, or employed in field work. The main preventive measure is eradication of rodents living in buildings and in natural environments.

1/2 019 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--EFFECT OF POLYMYXIN M ON TRANSMISSION OF EXCITEMENT IN NEUROMUSCULAR SYNAPSES AND GANGLIA OF VEGETATIVE NERVOUS SYSTEM -U-
AUTHOR--FILIPPOSYANTS, S.T.

COUNTRY OF INFO--USSR

SOURCE--ANTIBIOTIKI, 1970, VOL 15, NR4, PP 320-323

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ANTIBIOTIC DRUG EFFECT, NERVOUS SYSTEM, GANGLION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/0749 STEP NO--UR/0297/70/015/004/0320/0323

CIRC ACCESSION NO--AP0052195
UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--19SEP70
CIRC ACCESSION NO--AP0052195
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PLYMYXIN M SUPPRESSED TRANSMISSION OF EXCITEMENT IN THE NEUROMUSCULAR SYNAPSES ACCORDING TO THE COMPETITION TYPE OF EFFECT. THE ANTIBIOTIC WAS LOW ACTIVE WITH RESPECT TO THE ELEMENTS OF THE VEGETATIVE NERVOUS SYSTEM.

UNCLASSIFIED

USSR UDC 669.18-412:621.746.753

PIRKULOV, V. G., TAGER, L. P., PRYANISHNIKOV, I. S., FILIPPOV, A. F., and KLYUYEV, M. M., Elektrostal' Plant and Moscow Institute of Steel and Alloys

"Producing Charging Ingots From Metal-Abrasive Wastes of Heat-Resistant Alloys"

Moscow, Stal', No 8, Aug 73, pp 724-725

Abstract: The technology of concentrating the wastes from grinding a heat-resistant nickel-base alloy using electrical separators with corona discharge has been developed. The engineering modes were determined that provide the production of rich metallic concentrates with a metal content of almost 90% (mixture of oxidized metallic chip and alumina). The enriched concentrate was remelted in an experimental 50-kg induction furnace on a charging block with a resulting quality that satisfied specified requirements for smelting of heat-resistant alloys. Three figures, four bibliographic references.

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USSR

UDC 621.791.85

MAKUNIN, M. S., ZHELADNOV, V. I., TYUPOV, G. G., FILIPPOV, A. F., and SUNDYREV, I. A., Moscow

"Elimination of Nitrogen and Oxygen From Chromium-Nickel Alloys During Electron Beam Smelting"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 39-43

Abstract: Oxygen was removed from Ni-Cr-Ti alloy during a 5-min-long exposure to an electron beam when the surface temperature of the molten metal was 1600-1620°C. The residual concentration of oxygen was 0.001%, regardless of the initial oxygen concentration. Metallographic analysis of the initial and refined metal showed that oxygen was present in this alloy in the form of a complex spinel consisting of Cr_2O_3, Al_2O_3, and TiO_2 (if Ti is present). The refined metal was purer and the inclusions in it were distributed more uniformly. In order to decrease the concentration of nitrogen in Ni-Cr alloy from 0.099-0.047 to 0.02-0.01%, a 20-minute exposure of molten metal to the electron beam was required. For nickel alloys containing 8 and 20% Cr, the elimination of nitrogen amounted to 30-40%. The addition of 1.5% Ti to nickel alloy containing 8% Cr did not change the elimination kinetics of nitrogen. However, the purification rate of the alloy containing 20% Cr and 2% Ti from nitrogen was

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MAKUNIN, M. S., et al, Moscow, Fizika i Khimiya Obrabotki Materialov, No 1, Jan/Feb 73, pp 39-43

higher compared with the same alloy without Ti. A sharp decrease in the concentration of oxygen and nitrogen during melting of the electrode and a short exposure of molten metal to the electron beam showed that this method of refining of metals has many advantages. The largest amount of gases were removed from the thin layer of molten metal during the fusion of the electrode and from molten metal drops. The rate of elimination of nitrogen from the molten metal is controlled by the mass transfer processes.

2/2

Superalloys

USSR UDC 669.187.0:669.71:536.722

DYUBANOV, V. G., STOMAKHIN, A. Ya. and FILIPPOV, A. F., Moscow Institute of Steels and Alloys

"Aluminum Dissolution Enthalpy in Iron, Cobalt, and Nickel Melts"

Moscow, Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, No 3, 1972, pp 69-71

Abstract: The objective of this study was to determine experimentally the enthalpy of dissolution in molten Fe-Al, Co-Al, Ni-Al by the use of a high-temperature isothermal calorimeter. The procedure specified measurements and automatic recording of temperature variations of the melt following the addition of a specific weighted sample of aluminum. The temperature of the isothermal shell was maintained constant by a highly sensitive automatic regulator. The values of the partial heats of aluminum solution for molten iron were 61.5 ± 3 kj/g-atom Al; for cobalt--91.1 ± kj/g-atom Al; for nickel--147.5 ± 8 kj/g-atom Al. (2 illustrations, 1 table, 3 bibliographic references)

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USSR

UDC: 669.018.8

TOMASHOV, N. D., RUSKOL, Yu. S., FILIPPOV, A. F., BELYANCHIKOV, L. N., PLAVNIK, G. M., and FEDOROVA, G. M., Institute of Physical Chemistry, Academy of Sciences USSR

"Corrosion Behavior of Titanium-Molybdenum-Chromium Alloys"

Moscow, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 499-504

Abstract: This paper deals with the effect of chromium on the corrosion resistance of titanium alloys containing 5 and 10% molybdenum. The electrochemical and corrosion behavior of the alloys was studied by potentiometry, both the current and weight losses being the indicators of the corrosion rate. It has been shown that the β-phase of titanium alloys containing a stable (under the testing conditions) component such as molybdenum, possesses elevated corrosion resistance. In the active dissolution of two-phase α+β--alloys of titanium with molybdenum, predominantly the α-phase goes into solution, while the β-phase remains at the surface in the form of a finely disperse layer. In the active

USSR

TOMASHOV, N. D., et al, Zashchita Metallov, Vol 6, No 5, Sep-Oct 70, pp 499-504

dissolution in nonoxidizing media, the corrosion rate of Ti-Mo-Cr alloys markedly decreases only on addition of chromium in an amount sufficient for producing single-phase ß-alloys (Ti-5Mo-10Cr and Ti-10Mo-10Cr); however, if the alloys have an α+β-structure, then the corrosion rate remains about the same (as compared to Ti-Mo alloys). Chromium addition reduces the tendency of alloys to over-passivation, which is caused by the presence of Mo, and the Ti-5Mo-10Cr alloy exhibits the same low corrosion rate within 0.15 to 1.2 v as titanium or Ti-10Cr alloy. At potentials which are more positive than 1.2 v, the corrosion rate of Ti-Mo-Cr alloys begins to increase owing to the tendency of chromium to over-passivation.

1/2 033 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--TECHNOLOGICAL TREATMENT OF A MOLTEN METAL BY POWDERED MATERIAL -U-

AUTHOR-(05)-SIMONOV, V.I., KOSYREV, L.K., FILIPPOV, A.F., PRYANISHIKOV, I.S., KABANOVA, N.F.
COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UNCHEB. ZAVED., CHERN. METAL. 1970, 13(1) 52-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LIQUID METAL, CALCIUM FLUORIDE, CALCIUM OXIDE, PHOSPHORUS CONTAINING ALLOY, STEEL, POWDER METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0962 STEP NO--UR/0148/70/013/001/0052/0055

CIRC ACCESSION NO--AT0105831

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AT0105831

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPHOSPHORIZATION OF STEEL CONTG. P 0.03-0.1, C 0.12-1.09, AND MN 0.07-0.15 WT. PERCENT WAS CARRIED OUT IN A 40 KG INDUCTION FURNACE WITH BASIC CRUCIBLE BY MEANS OF A POWDER OF CAO AND CAF SUB2 (RATIOS 9:1, 4:1, AND 3:1) BLOWN THROUGH THE MOLTEN METAL IN A GAS SUSPENSION. NO INCREASE IN N OR O CONTENT WAS OBSD.; ON THE CONTRARY, THE GAS CONTENT OF THE METAL DECREASED DURING THE BLOWING WITH THE POWDERS. THE BEST DEPHOSPHORIZATION CONDITIONS WITH CAO-CAF SUB2 MIXTS. OCCURRED WITH THE MIXT. CAO:CAF SUB2 EQUALS 4:1 AND THE WORST AT A RATIO 3:1. THE ADDN. OF FEO TO THESE MIXTS. DID NOT INCREASE THE DEPHOSPHORIZATION DEGREE; HOWEVER, THE REPLACEMENT OF A PART OF THE CAO BY BAO IMPROVED THE DEPHOSPHORIZATION, SO THAT WITH CAO-BAO-CAF SUB2 EQUALS 3:1:1 THE FINAL P CONCN. WAS 0.008-0.005 WT. PERCENT.

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AA0039822 F UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

3/10

238599 DYNAMIC LOGIC ELEMENT "AND" - "OR", "AND" "NOR" for numerical computers, containing input diodes and two transistors with common emitter. The collector of the first transistor is associated with the base of the second and the collector of the second is connected to the input circuit via opposing diodes 7, 8. The logic element works with two strobe generators shifted 180°.

16.2.68. as 1219015/18-24. A.G.FILIPPOV. Moscow Institute for Engineering - Physics. (21.7.69.) Bul.10/10 3.69. Class 21a¹, Int.Cl. H03k.

Moskovskiy Inzhenerno - Fizicheskiy Institut

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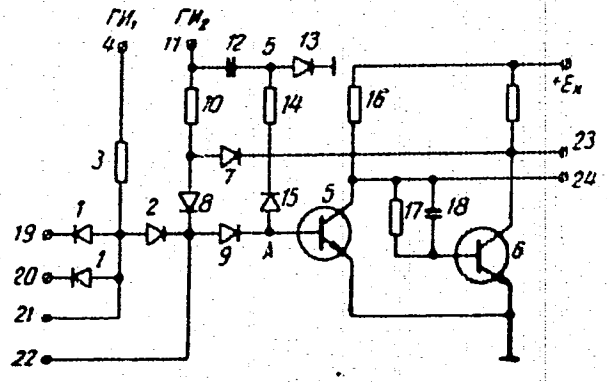

19741178

USSR

UDC: 539.3:551.243

FILIPPOV, A. I.

"Theory of Calculation of Reinforced Concrete Structures Considering Creep and Change in Modulus of Deformation of Concrete"

Izv. VNII Gidrotekhn. [News of All-Union Scientific Research Institute for Water Engineering], 1972, 99, pp 258-262, 305 (Translated from Referativnyy Zhurnal Mekhanika, No 12, 1972, Abstract No 12V528, by the author)

Translation: It is demonstrated that the solution of the primary problems from the theory of the design of linearly deformable elastic-creep reinforced concrete structures with homogeneous concrete composition and variable modulus of deformation of the concrete can be found in closed form using methods suggested earlier by the author for the design of similar structures with constant modulus of elasticity of the concrete if the process of hardening in the concrete is described (with any required accuracy) using supplementary concepts introduced in the work: the hardness measure $H(t, \tau)$, hardening function $\psi(\tau)$ and arbitrary elasticity modulus of the concrete $E_0 \geq E(\infty)$. The values of the basic time functionals of the theory are found by numerical solution of one integral equation (with various parameters), for example by the method of mechanical quadratures. A new quadrature formula is produced for numerical solution of

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USSR

Filippov, A. I., Izv. VNII Gidrotekhn., 1972, 99, pp 258-262, 305.

this equation and its accuracy is discussed. In conclusion, an expression is suggested for the creep measure of the concrete, suitable for calculation of precast monolithic (heterogeneous as to concrete) hardening elastic-creep reinforced concrete structures.

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1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--GRAPE POLYPHENOLS -U-

AUTHOR-(04)-BOKUCHAVA, M.A., KNYAZEVA, A.M., VALUYKO, G.G., FILIPPOV, A.M.

COUNTRY OF INFO--USSR

SOURCE--VINODEL. VINOGRAD. SSSR 1970, 30(1), 7-11

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--AGRICULTURE CROP, FOOD ANALYSIS, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0659 STEP NO--UR/0505/70/030/001/0007/0011

CIRC ACCESSION NO--AP0117884

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117884

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POLYPHENOLIC COMPLEX OF RIPE GRAPES WAS COMPOSED OF SIMPLE CATECHOLS. THE AMT. OF GALLATES WAS INSIGNIFICANT. THE PROPOSED METHOD FOR THE DETN. OF TOTAL POLYPHENOLIC SUBSTANCES IN GRAPES (TANNINS FROM SEEDS) WAS RELIABLE AND MINIMIZED THE OXIDN. OF PHENOLS. GRAPE SEEDS (150 G) WERE PULVERIZED, MIXED WITH DISTD. WATER (370 ML), AND EXTD. ON A WATER BATH AT 80DEGREES FOR 5 MIN AFTER ADDING 10PERCENT K SUB2 S SUB2 O SUB5 TO PREVENT OXIDN. TANNINS WERE THEN TAKEN UP IN ETOAC, DRIED WITH NA SUB2 SO SUB4, AND CONCD. UNDER VACUUM AT 35-40DEGREES. TO PPT. THE TANNINS, CHCL SUB3 WAS ADDED; THE PPT. WAS SEPD. ON A SINTERED GLASS FILTER AND WASHED WITH CHCL SUB3.

FACILITY: INST. BIOKHIM. IM. BAKHA, MOSCOW, USSR.

UNCLASSIFIED

UNCLASSIFIED

TITLE--RECIRCULATION FLAME FURNACES WITH TWO STAGE FUEL FIRING AND PROGRAMMED HEAT CONTROL -U-

PROCESSING DATE--11SEP70

AUTHOR--PUGOVKIN, A.U., IVANOV, YU.P., FILIPPOV, A.N.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, KUZNECHNO-SHTAMPOVOCHNOYE PROIZVODSTVO, NO 2, 1970, PP 30-33

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL INGOT, METAL HEAT TREATMENT, AUTOMATIC CONTROL SYSTEM, METALLURGIC FURNACE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1985/0312

STEP NO--UR/0182/70/000/002/0030/0033

CIRC ACCESSION NO--AP0100800

UNCLASSIFIED

2/2 018 UNCLASSIFIED

CIRC ACCESSION NO--AP0100800 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BECAUSE EXISTING SYSTEMS OF FLAME FURNACES DO NOT PROVIDE THE REQUIRED ACCURACY AND STABILITY OF HEATING OF METAL INGOTS, METHODS OF CONTROL HAVE BEEN DEVELOPED FOR MAINTAINING A SPECIFIED TEMPERATURE, USUALLY EQUAL TO THE FINAL TEMPERATURE OF THE HEATED METAL, AT ONLY THOSE PARTS OF THE OPERATING CHAMBER IN WHICH THE HEATING IS MOST INTENSE. THEN , THE CONTROL OF THE PROCESS REDUCES TO RAISING THE TEMPERATURE OF THE REMAINING PARTS OF THE OVEN TO THE GIVEN TEMPERATURE. THIS ARTICLE EXPLAINS SUCH A SYSTEM. PRELIMINARY CALCULATIONS CONDUCTED BY THE AUTHORS INDICATE THAT, OTHER CONDITIONS BEING EQUAL, THE DROP IN TEMPERATURE IN THE OPERATING SPACE OF THE OVEN MAY VARY AS A FUNCTION OF THE SUPPLY OF THE HEATING MEDIUM AND OF THE ORGANIZATION OF THE GAS FLOW INSIDE THE SPACE. THE SYSTEM INCLUDES THE FOLLOWING: AUTOMATIC PROGRAMMED CONTROL AND TEMPERATURE REGULATION IN THE OVEN'S OPERATING SPACE; AUTOMATIC CONTROL AND REGULATION OF THE GAS PRESSURES IN THE OPERATING SPACE; AUTOMATIC CONTROL AND REGULATION OF THE AIR PRESSURE FOR GAS RECIRCULATION; CONTROL OF FUEL EXPENDITURE; CONTROL OF RAREFACTION IN THE HORIZONTAL FLUE; GAS SHUTOFF WHEN THE PRESSURE OF GAS OR AIR FALLS IN RECIRCULATION. A CROSS SECTIONAL DRAWING OF THE FURNACE AND THE ELECTRICAL CIRCUIT FOR AUTOMATIC CONTROL PROGRAMMING ARE SUPPLIED WITH THE TEXT. RESULTS OF RESEARCH MADE ON RECIRCULATION OVENS WITH REMOVABLE HEARTH FOR HEATING INGOTS BEFORE PRESSING ARE ALSO PROVIDED.

UNCLASSIFIED

USSR

UDC 546.791.4'21:542.61

FILIPPOV, A. P., and STRELKOV, L. A.

"Kinetics of the Solution of Uranium Dioxide in the Solutions of Nitric Acid Solvates"

Leningrad, Radiokhimiya, Vol 15, No 2, 1973, pp 186-194

Abstract: The kinetics of the solution of uranium dioxide in nitric acid solutions with TBF, D2EGFK, and TOA nitrate was investigated by the method of rotating disk. The relationship between the physico-chemical processes of the solutions of nitric acid in TBF, D2EGFK, TOA and their composition has been established, the constants of the formation and the concentration of HNO_3 solvates in the organic phase have been calculated. It has been shown that the most important factor of the solution in nitric acid solvates is the presence of the solvate with two molecules of HNO_3 in the organic solution. It has been shown that in the diffusional area of the process ($\omega < 500$ rpm) the limiting stage is the diffusion of the reaction products; in the kinetic area the limiting factors are the stages of the decomposition of nitric acid ($t = -16$ -- $0^{\circ}C$) and oxidation of the uranium ($t = 0$ -- $50^{\circ}C$).

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USSR UDC 534.134

FILIPPOV, A. P. and KOSINOV, YU. P. (Khar'kov)

"Free Torsional Oscillations of the "Shaft-Disk-Blade" System of Turbounit Rotors"

Moscow, Mashinovedeniye, No 3, May 1973, pp 23-28

Abstract: A method suitable for the use of an electronic digital computer is presented for calculation of the natural frequencies and forms of oscillation of the "shaft-disk-blade" system of turbounit rotors. The method is based upon expansion of the forms of concurrent oscillations of the system on the basis of the oscillation forms of "partial elements" (disks and blades). The obtained frequency equation, which is free of "resonances," is subsequently solved by means of simple selection. Expressions of the conditions of generalized orthogonality of the oscillation forms of the "shaft-disk-blade" system are presented, together with results of the calculation of a numerical example. 1 figure. 1 table. 1 reference.

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USSR

UDC: (542.61+542.93):546.791

STRELKOV, L. A., FILIPPOV, A. P.

"Investigation of Processes of Oxidation and Dissolution of Uranium Compounds in Anhydrous Media. IV. Dissolution of UO_2 in the Trioctylamine-Nitric Acid System"

Leningrad, Radiokhimiya, Vol 14, No 3, 1972, pp 487-488

Abstract: The paper presents the results of research on dissolution of UO_2 in the trioctylamine-HNO_3 system (in xylene). It was found that the highest oxidative capacity is shown by nitric acid in the low-stability solvate trioctylamine·HNO_3·$2HNO_3$·H_2O. Dissolution of this solvate frees undissociated nitric acid molecules which then act as an oxidant for hexavalent uranium.

USSR UDC 539.3:534.1

FILIPPOV, A. P., YANYUTIN, YE. G., (Kharkov), Khar'kov Branch, Institute of Mechanics, Academy of Sciences, Ukrainian SSR

"Determination of the Initial Reaction of a Concial Shell to a Pulse Load"

Kiev, Prikladnaya Mekhanika, Vol 7, No 8, 1971, pp 111-114

Abstract: A solution describing the initial period of deformation of a shell is constucted on the basis of the equations for a round conical shell within the theory of Timoshenko. Use of expansions of the desired functions in Fourier-Bessel and Dini series provides accurate satisfaction of the boundary conditions. The proposed method may be used for determining the initial reaction of a concical shell to an arbitrary axially symmetric load, ten terms in the series yielding an error of not more than 5%. Three references.

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USSR

UDC 546.791:54 - 145.4

STRELKOV, L. A., and FILIPPOV, A. P.

"Study of the Oxidation and Dissolution Processes of Uranium Compounds in Non-aqueous Media. II. Effect of the State of Nitric Acid in the System TBF-HNO_3 on the Oxidation and Solution Process of UO_2"

Leningrad, Radiokhimiya, Vol 13, No 1, 1971, pp 58-62

Abstract: Using the system TBF-HNO_3 (in octane), oxidation-reduction reactions of UO_2 were studied in nonaqueous systems. It was established that an effective oxidation and solution process of UO_2 occurs in TBF saturated with HNO_3 when the equilibrium concentration of HNO_3 in the aqueous phase is greater than 4M (molar ratio of HNO_3 to TBF should be grater than 0.6). It has been shown that the molar nitric acid contained in the complex TBF·2HNO_3 with low solubility constant acts as an oxidizer for U (IV) in TBF solutions. Nitrogen oxide evolving during the oxidation of uranium can be recycled for further oxidation and solution processes so that the degree of utilization of nitric acid increases with the process.

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USSR

UDC 539.3:534.1

OL'SHANSKIY, V.P., FILIPPOV, A.P. (Kharkov), Kharkov Branch, Institute of Mechanics, Academy of Sciences, Ukrainian SSSR

"Deformations of a Nonsymmetric Three-Layer Plate With aFiller Upon Impact"

Kiev, Prikladnaya Mekhanika, No 3, 1972, pp 54-57

Abstract: The article deals with a elastic impact of a body upon a nonsymmetric three-layer palte. The problem is reduced to a functional equation which differs from the equation of S.T. Timoshenko by a supplementary term which takes into account the transverse compression of the filler. The compression is taken into account by representing the flexure of the top facing, which receives the impact, in the form of the sum of the local flexure and the averaged flexure. The averaged flexure is determined from a solution of a system of three equations of motion that are constructed on the hypothesis of a broken line. The local flexure is found by means of solving the static problem, where the filler is regarded as the three-dimensional solid, and the facings are subject to the Kirchhoff hypothesis. An investigation is made of the influence of materials and the thickness of the layer which comes into contact with the striking body, upon the process of the impact. 1 table, 3 bibliographic entries.

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USSR

UDC 546.791:54-145.4

FILIPPOV, A. P., and STRELKOV, L. A.

"Study of the Oxidation and Dissolution Processes of Uranium Compounds in Non-aqueous Media. I. Dissolution of Uranium Oxides in Extractor Solutions Saturated With Mineral Acids"

Leningrad, Radiokhimiya, Vol 13, No 1, 1971, pp 52-57

Abstract: It was shown that heterogeneous oxidation and solution of uranium oxides may be carried out in non-aqueous solutions of mineral acids. Using nitric acid as an example it was established that oxygen-containing acids, normally used as oxidizers in aqueous solutions, may be used successfully as oxidizers in non-aqueous media. The unique characteristics of oxidation in non-aqueous media is that it occurs energetically already at room temperature and with low concentration of the reagents. The solution process of uranium oxide in organic solvents appeared to be very selective: dissolving a 1:1 mixture of uranium (IV) oxide and iron (III) oxide leads to a 300 fold enrichment of uranium after one operation. This selective dissolution of uranium compounds coupled with oxidation may be used for direct extraction of uranium from minerals without having to dissolve them first in acids.

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USSR UDC: 542.943:546.791

STRELKOV, L. A., FILIPPOV, A. P.

"Investigation of Processes of Oxidation and Dissolution of Uranium Compounds in Anhydrous Media. III. Dissolution of Uranium Oxides in Solutions of Di-2-Ethylhexyl Phosphoric Acid"

Leningrad, Radiokhimiya, Vol 14, No 3, 1972, pp 405-409

Abstract: The authors studied dissolution of uranium trioxide, uranium dioxide, and a mixture of uranic and uranous oxides in di-2-ethylhexylphosphoric acid solutions saturated with nitric acid. It was found that the dissolution of uranium trioxide in this medium is determined by the water content in the organic solvent, and is independent of the degree to which the extracting agent is saturated with acid. It was established that oxidation and dissolution of UO_2 and U_3O_8 proceed effectively in a nitric acid-saturated solution of di-2-ethylhexylphosphoric acid when the concentration of HNO_3 in the equilibrium aqueous phase is more than 6M HNO_3 (molar ratio of HNO_3:di-2-ethylhexylphosphoric acid of 0,16 or more). Tetravalent uranium is oxidized in di-2-ethylhexylphosphoric acid solutions by molecular nitric acid as a component part of the complex di-2-ethylhexyl phosphoric acid · HNO_3 with low constant of stability $\tilde{K}_2 = 1.5 \cdot 10^{-3}$.

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USSR UDC 63:576.8:578.083

DUNSKIY, V. V., MINAYEVA, L. A., FILIPPOV, A. V., and SHUMILOV, V. A., All-Union Institute of Plant Pathology, B. Vyazemy, Moscow Oblast

"A Highly Sensitive Trap for Microbiological Studies of the Atmosphere"

Moscow, Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

Translation: The concentration of spores of phytopathogenic fungi at the onset of a disease is usually calculated in units per tens of cubic meters of air. It is necessary to be able to detect spores promptly among other particles suspended in the air.

Various types of gravity traps are now used for this purpose. Despite their extreme simplicity, they have a common disadvantage - low sensitivity (1). There are also the inertial types of traps (2). One of them, the L-1, is intended to trap spores (or other particles 5 μm in diameter) and measure the concentration of the particles. Another trap, the L-2, makes it possible to determine the diurnal change in concentration of these particles in the air.

However, it is sometimes necessary (e.g., when forecasting plant diseases) not only to trap spores but to determine their viability. The gravity and inertial traps show only the total concentration of particles of a certain type. This drawback can be overcome by using a previously described method (3)

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DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

whereby air is pumped directly through the fascicles of live plants. The spores present in the air are "filtered" by the plants and settle on them. After a brief exposure the plants are placed in a medium conducive to the growth of phytopathogenic organisms. The presence of infectious spores is determined from the symptoms of disease (spots, pustules, etc.) visible to the naked eye. However, this method, like the others, is not very sensitive because of the brevity of exposure caused, first, by the rapid drying of the leaves by the air passing through them and, second, by the fact that the flow rate of the air through the plants is limited by their mechanical strength.

We devised a method whereby the spores in the air can be concentrated and then allowed to settle in a special chamber on moist plant leaves, i.e., under conditions favorable for the growth of phytopathogenic organisms. The spores are concentrated in a cyclone dust separator. When using the cyclone, the volume of air from which the spores are removed can be increased hundreds and thousands of times without running the risk of the plants drying or suffering injury, and the plants in the chamber can be moistened from time to time.

Based on the suggested method, we designed and built a highly sensitive trap consisting of a cyclone separator capable or removing spores 10 μm or more in diameter from the air. The separator is connected by a pipe to a

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DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

centrifugal fan (capacity 360 m^3/hour) powered by an electric motor (0.4 kv). Air enters through an inlet tube at about 20 m/sec. The suspended particles settle in a chamber under the outlet tube. Air free from spores is expelled through a ventilator. In a hermetically sealed metal chamber connected to the separator is a screen on which whole plants or leaves resting on water are set. Distilled water is poured into the space between the bottom of the chamber and the screen to help maintain high humidity in the chamber and supply a drum sprayer. The latter, driven by an electric motor (50 v, 3000 rpm), produces and maintains drops of moisture on the leaves in the chamber. Water is fed the drum sprayer by a centrifugal pump (capacity 200 ml/min) through a jet nozzle via a pipe line with a filter. The drum sprayer and pump operate intermittently with a timer in order to prevent the spores from being washed from the leaves in the presence of too much moisture.

A readily removable, transparent, hermetically sealing hatch in the front of the chamber permits the plants to be changed. Live spores settling downward from the outlet pipe of the separator strike the wet leaves where they germinate and form spots.

Trials of the new device along with the L-1 and L-2 traps to find spores of the causative agent of late blight of potato showed that the new device

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DUNSKIY, V. V., et al., Sel'skokhozyaystvennaya Biologiya, No 2, 1973, pp 290-291

detected the presence of spores in the air in 15 of 18 cases. During the same period of time the L-1 and L-2 traps detected the presence of conidia in only 3 cases and it was impossible to tell whether the spores were live or dead.

The results of the trials justify our recommending the new device as a means of detecting promptly and judging the viability of phytopathogenic organisms in the air.

USSR F UDC 632.911.2

FILIPPOV, A. V., All-Union Scientific Research Institute of Phytopathology, Moscow, Ministry of Agriculture USSR
"Aspects of the Determination of Fungicidal Activity of Compounds in Relation to Potato Blight"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 7, Jul 70, pp 36-37

Abstract: A method is presented for determining the fungicidal activity of compounds in relation to potato blight. According to data presented by N. G. ANTSIFEROV, in the zone of Phytophtora propagation, even before the manifestation of stoma damage, the leaves are irreversibly open. Upon application on such a leaf of any liquid capable of wetting the cuticula (for example, ethyl alcohol or benzene), a clear spot forms in the damage zone. The authors determined that this type of potato reaction to fungus intrusion could be used for laboratory evaluation of chemical agents for control of Phytophtora.

For this purpose, immediately after treating the potato plants or after a short period, depending on nature of the investigation, individual leaves are torn off and receive uniform applications of an aqueous suspension of Phytophtora conidia, after which they are

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FILIPPOV, A. V., et al., Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 7, Jul 70, pp 36-37

are inserted for 12 hours in a Petri dish with moistened filter paper, or in any mosit chamber. After this period has elapsed, the leaves, in bunched form, are inserted into a water-containing flask and on the following day are immersed (each leaf separately) in a vessel containing ethyl alcohol. After 5-10 seconds, on the surface of the leaf in the zone of each individual damage a clear dark spot forms. The leaf treated in this manner is analyzed by superimposition of a square template within which the number of spots is counted. The average number of spots per unit of leaf surface serves as the indicator of leaf blighting by Phytophtora and, consequently, of the effectiveness of the fungicide. The effectiveness of zineb (zinc ethylenebisdithiocarbamate) against Phytophtora was determined experimentally by this method with adequate accuracy by the second day after the infection of the plants.

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USSR UDC: 538.221

FILIPPOV, B. N., LEBEDEV, Yu. G.

"The Growth of Magnetic Switching Seeds in Ferromagnetic Single Crystals of Limited Dimensions"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 5, Nov 73, pp 933-945.

Abstract: The conditions of growth and destruction of centers of magnetic reversal in the form of spheres and ellipsoids of rotation in specimens of limited dimensions in the form of ellipsoids of rotation and parallelepipeds are studied. It was assumed that field H_0, hindering the development or destruction of seeds, may be either homogeneous through the crystal or heterogeneous. The starting field is determined as a function of the location and dimensions of the remagnetization centers, as well as the dimensions and forms of the specimen. A model is suggested for the growth of spherical seeds in a crystal with heterogeneous H_0, leading to dependence of the field of sudden change in magnetized state on the magnetizing field, which agrees

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Filippov, B. N., Lebedev, Yu. G., Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 5, Nov 73, pp 933-945.

qualitatively with the experimental dependence. The studies showed that at $H_0 = 0$, a center can never be in equillibrium, and must either disappear or grow. A field $H_0 \neq 0$ may inhibit a change in length of thickness of a center or cause it to freeze completely. There is a certain finite length of a center, decreasing with increasing reverse magnetic field, below which its length can only decrease. The starting fields are found to depend on dimensions and locations of centers.

USSR UDC:533.6:629.76+629.78

GUN'KO, Yu. F., KURBATOVA, G. I., FILIPPOV, B. V.

"Method of Calculation of Aerodynamic Factors of Bodies in a Highly Rarefied Plasma in the Presence of a Strong Internal Magnetic Field"

Aerodinamika Razrezh. Gazov [Aerodynamics of Rarefied Gases -- Collection of Works], No 6, Leningrad University Press, 1973, pp 54-66 (Translated from Referativnyy Zhurnal Aviatsionnyye i Raketnyye Dvigateli, No 9, 1973, Abstract No 9.34.17)

Translation: The influence of the internal magnetic field on the aerodynamic characteristics of bodies moving in a rarefied plasma was studied. The study was performed for the case where $R>>\rho_i$, where R is the characteristic dimension of the body, ρ_i is the Larmor radius of an ion near the surface of the body. The internal magnetic field was a dipole field. It is shown that for $R'>>1$, the primary contribution to forces and moments is made by particles scattered by the dipole field, and in this case the stagnation force is proportional to $h_0 V e_i M$, where h_0 is the unperturbed ion density, V is the velocity of motion of the body, e_i is the ionic charge, M is the dipole moment. In calculating the forces and moments

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GUN'KO, Yu. F., KURBATOVA, G. I., FILIPPOV, B. V., Aerodinamika Razrezh. Gazov, No 6, Leningrad University Press, 1973, pp 54-66

acting on the body due to indirect collisions of ions with the surface of the body, drift equations of motion were used. As an example, calculations are presented for a sphere moving parallel to the axis of the dipole. 3 Figures; 10 Biblio. Refs. Resume

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USSR UDC: 629.78.015:533.9

GUN'KO, Yu. F., KURBATOVA, G. I., FILIPPOV, B. V.

"Method of Calculating Aerodynamic Coefficients of Bodies in a Highly Rarefied Plasma in the Presence of the Strong Magnetic Field of the Plasma"

Aerodinamika Razrezh. Gazov [Aerodynamics of Rarefied Gases -- Collection of Works], No 6, Leningrad University Press, 1973, pp 54-66 (Translation from Referativnyy Zhurnal Raketostroyeniye, No 10, 1973, Abstract No 10.41.76, from the resume)

Translation: The influence of the internal magnetic field on the aerodynamic characteristics of bodies moving in a rarefied plasma was studied. The study was performed for the case $R \geq \rho_u$, where R is the characteristic size of the body, ρ_u is the larmor radius of an ion near the surface of the body. The natural magnetic field was a dipole field. It is shown that for $R' \ll 1$, the primary contribution to forces and moments is made by particles scattered by the dipole field, the braking force in this case being proportional to $n_0 V_e l_u M$, where n_0 is the unperturbed ion density, V_e is the velocity of motion of the body, l_u is the ion charge, M is the dipole moment.

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GUN'KO, Yu. F., et al., Aerodinamika Razrezh. Gazov, No 6, 1973, pp 54-66

In calculating the forces and moments acting on the body as a result of direct collisions of ions with the surface of the body, the drift equations of motion were used. As an example, calculations are presented for a sphere moving parallel to the axis of the dipole. 3 figures; 10 biblio. refs.

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USSR

TREGUBOV, V.P. and FILIPPOV, B.V.

"Equalizing Currents on the Surface of Metal Body in Highly-Rarefied Plasma"

Leningrad, Aerodinamika Razrezhennykh Gasov, 1970, pp 148-160

Abstract: In the case of a metal body moving through highly-rarefied plasma the total negative charge of the electrons deposited on the surface is equal to the total positive charge of the ions. However, the distributions of the positive and negative charges are not the same, resulting in equalizing surface currents. These currents interacting with the magnetic field of the earth result in forces acting on the body.

Formula (37) is the relation between the surface current and the net charges deposited per unit of surface of a body of revolution moving in the direction of its axis. By means of this formula the distribution of the surface currents and the electromagnetic force are determined for the following three bodies of revolution:

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TREGUBOV, V. P., and FILIPPOV, B. V., Aerodinamika Razrezhennykh Gasov, 1970, pp 148-160

1. Sphere
2. Cone
3. Cylinder with a hemisphere on the leading end.

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USSR

UDC 533.916

KOLESNIKOV, Ye. K., and FILIPPOV, B. V.

"Evolution of Charged Particles From a Point Source in a Magnetic Dipole Field"

Leningrad, Vestnik Leningradskogo Universiteta - Matematika, Mekhanika, Astronomiya, No. 2, Apr 70, pp 88-120

Abstract: Two integrals of the equations of motion of a charged particle in the field of a magnetic dipole are used to obtain information on the nature of the propagation of particles injected by a point source into this field. A qualitative picture is given of the motion of particles in the field of the magnetic dipole, and criteria are formulated for the capture of a particle by this field. Values are found for the velocities of particles which, in all probability, move to an infinite distance from the dipole or are absorbed by an impermeable sphere surrounding the dipole. These results are applied to a study of the propagation of electrons in the magnetic field of the earth in cases of low and high temperature injection. The results are valid in regions in which the deviation of the actual magnetic field of the earth from a dipole can be neglected. It is

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KOLESNIKOV, Ye. K., and FILIPPOV, B. V., Vestnik Leningradskogo Universiteta - Matematika, Mekhanika, Astronomiya, No 2, Apr 70, pp 88-120

shown that low-temperature electrons move near the force surfaces of the terrestrial dipole. Also discussed is plasma injection in the field of a magnetic dipole for finite dimensions of the injector.

USSR

UDC: 621.771.23:539.37.001.4

FILIPPOV, E. L., and KLIMENKO, V. M., Donetsk Polytechnic Institute

"Studying Stresses During Rolling of High Flat Products in Smooth Rollers"

Moscow, Izvestiya Vysshykh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 4, 1973, pp 105-108

Abstract: The authors produced and rolled specially designed, composite, wedge shaped, lead specimens under laboratory conditions in order to verify the analytically obtained formulas for determining stresses which arise at the seat of deformation during the rolling of high flat products (ingots). The experimental data are in agreement with the calculations. The developed design of the composite lead specimen, which excludes the effect of external zones on the deformation of the central axial part of the upper level of the flat product, made it possible to obtain interesting data on the manifestation of upper level compression deformation along the cross section of the specimen.

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USSR UDC 541.13

SHTERMAN, V. S., GORDIYEVSKIY, A. V., FILIPPOV, E. I., and BRUK, S. V., Moscow Institute of Chemical Technology imeni D. I. Mendeleyev

"Study of Ion-exchange Membranes. V. Membrane Ion-exchange Electrodes in Nonaqueous Media"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 8, Aug 70, pp 2059-2060

Abstract: The authors studied the behavior of membrane ion-exchange electrodes in solutions of hydrogen chloride and trioctylamine chloride in dehydrated ethanol. The sensitive elements of the electrodes were cation-exchange membrane ankalit K-5 and anion-exchange membranes MA-100 and RMA-101. The results indicate that both cation-exchange and anion-exchange membrane electrodes can be used as indicator electrodes in media with average permittivity values. They should be precalibrated for precise electrochemical measurements. Cation-exchange membranes with strongly acidic functional groups display greater chemical activity in ethanol solutions than anion-exchange membranes containing tertiary and quaternary amino groups.

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1/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70
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AUTHOR--FILIPPOV, E.M.

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2/2 013 UNCLASSIFIED PROCESSING DATE--11SEP70
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASED UPON EXPOTENTIAL LAW OF EMANATION RELAXATION IN THE SUBSTANCE THE FORMULAS ARE DEDUCED FOR CALCULATION OF THRESHOLD RESPONSE OF ABSORPTIVE NUCLEAR GEOPHYSICAL METHODS. IT SHOWN THAT THIS VALUE MAY BE EXPRESSED IN TERMS OF RELATIVE SQUARE ERROR OF COUNTING RATE BY RAYING OF HOST MEDIUM. IN THE CASE OF VARIATION OF THE HOST MEDIUM THE THRESHOLD RESPONSE WILL BE DEPENDED BOTH ON ERRORS OF HOST MEDIUM RELAXATION AND MEASURED COUNTING RATE.

UNCLASSIFIED

USSR UDC 660.67:546.19

KUZ'MIN, N. M., FEDOROV, V. A., and FILIPPOV, E. P.

"Combined Method of Deep Purification of Arsenous Chloride"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 4, 1971, pp 909-911

Abstract: The article suggests using a combination of extraction and rectification for the purification of arsenous chloride. The initial material to be purified is commerical arsenous chloride obtained by chlorination of metallic arsenic and the dissolution of arsenic trioxide in hydrochloric acid. The three-stage extraction purification is carried out at $\mathcal{V}_{AsCl_3} : \mathcal{V}_{C_6H_6} : \mathcal{V}_{HCl} = 1:1:0.5$. Rectification of the benzene solution of arsenous chloride is carried out on an integral packed-type column made of synthetic quartz. The method provides effective removal of microimpurities from arsenous chloride.

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USSR F UDC 681.325.3(088.8)(47)

De-MARTINI, A. P., KOTEL'NIKOV, M. V., and FILIPPOV, E. V.

"Analog-Digital Converter"

USSR Author's Certificate No 227720, filed 27/03/67, published 10/02/69, (from Referativnyy Zhurnal Avtomatika, Telemekhnaika i Vychislite'-naya Tekhnika, No 12, 1969, Abstract No 12 A225 P by Ye. S.)

Translation: One defect of known analog-digital converters is the fact that the volume of the threshold portion must be doubled when the number of bit positions is increased by one. A converter circuit is suggested which is based on a method of comparison and periodic reading of the digital equivalent and contains threshold elements of two cores. The circuit differs in that the inputs of the logic circuits and current switches are connected to the last three threshold elements, while their outputs are combined and connected to a d.c. bus passing through all the threshold elemnts except those connected to the current switches. In this circuit the number of bit positions can be increased by one, using one current switch; by two using three current switches; etc. Four illustrations.

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FILIPPOV, G.

RESEARCHER IN GRAVITATIONAL FIELD NOMINATED FOR LENIN PRIZE

[Article by V. Shelest, Doctor of Physico-mathematical Sciences, Corresponding Member of the Academy of Sciences of the Ukrainian SSR, and G. Filippov, Doctor of Physico-Mathematical Sciences; Kiev, Radyans'ka Ukraina, 24 March 1972, p 2]

A unique new branch of the theory of relativity and gravitation has recently been opened at the Institute of Theoretical Physics of the Academy of Sciences of the Ukrainian SSR. It consists of a section on theoretical physics devoted to theoretical studies of the gravitational field. O. Z. Petrov, Academician of the Academy of Sciences, who devoted his whole scientific life to this study, was entrusted with organizing the section and appointed its head. Two of the main monographs by O. Z. Petrov on new methods of the contemporary theory of gravitation have been suggested for his nomination for the 1972 Lenin Prize.

We shall try to comment in general terms on the achievements of the scientist.

The Newtonian theory of gravitation, based on the law of gravitational attraction, is thoroughly affirmed by ordinary earth conditions (for phenomena occurring at velocities small as compared to the speed of light), astronomical observations, and so forth. At the same time, certain causes require recognizing the Newtonian theory of gravitational attraction as only a good approximation of the more exact theory of gravitation.

As is generally known, the planets of the solar system move along ellipses, with the sun at one of the foci of the ellipse. The point on a planet's orbit that is nearest to the sun is called the perigee. Extensive astronomical observations show that the perigee of a planet slides a little along the orbit in the course of a complete revolution. The most accurate observations of the planet Mercury show that its perigee shifts, during a century, through an angle of approximately 45 seconds, while the Newtonian theory as well as the general theory of relativity [sic] calculated it at a figure one-sixth as large. Astronomical observations show that a ray of light approaching the disc of the sun suffers a

USSR UDC 621.165

DEYCH, M. Ye., FILIPPOV, G. A., SALTANOV, G. A., LAUKHIN, Yu. A., and SIVOBOROD, V. A.

"Investigation of Phase Transitions in Eddy Currents of Supersaturated Steam"

Moscow, Energetika i Transport, No 2, 1972, pp 160-166

Abstract: In the article are presented the results of an experimental investigation of the condensation of water vapor in a vortex wake behind a stream flowing lengthwise about a flat plate at $M_\infty < 1$. Special attention was devoted to the structure of the vortex wake and to the particle size of the liquid phase in the wake. The dispersion field of the liquid phase in the wake behind the edge was measured. The stream was photographed in order to obtain the wake structure more exactly. A theoretical justification of the possibility of steam condensation in eddy currents is given on the basis of the consideration of a single eddy. 5 figures. 9 references.

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USSR UDC 539.14 + 539.143

SIMENOG, I. V., and FILIPPOV, G. F., Institute of Theoretical Physics, Academy of Sciences Ukrainian SSR, Kiev

"Local Self-Consistent Field in Nuclei With a Large Number of Nucleons"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 15, No 8, Aug 70, pp 1305-1309

Abstract: Equations are obtained for the local self-consistent field in a system with a large number of particles. For an atom the resultant equations change to the Thomas-Fermi model. The article discusses the application of these equations to nuclei. Conditions are found whereby the self-consistent field takes the form of a square well. Binding energy and the density of heavy nuclei are calculated in the case of exchange forces which provide saturation. An evaluation is made for the stability boundary of nuclei having an excess of nucleons of one kind.

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USSR UDC 539.14+539.143

FILIPPOV, G. F., and MAKSIMENKO, V. N., Institute of Theoretical Physics, Academy of Sciences Ukrainian SSR, Kiev

"Second-Order Correction of Perturbation Theory to Variational Binding Energy of H^3 and He^4"

Kiev, Ukrainskiy Fizicheskiy Zhurnal, Vol 15, No 8, Aug 70, pp 1277-1283

Abstract: In order to reach a conclusion regarding the applicability of shell model oscillator wave functions as the trial functions for the variational calculation of nuclear binding energy, it is necessary to calculate the second-order correction of the perturbation theory due to the difference between the pair potential of the interaction between nucleons and the effective oscillator pair potential which generates oscillator wave functions. The article describes results of calculating the second-order correction to the binding energy of the lightest H^3 and He^4 nuclei. The results show that the value of the binding energy correction depends on the two-body interaction variant that is chosen. For He^4 it is a tenth of the energy value determined by the variational method if only central forces act between the nucleons, and over half in the case of tensor forces. There are similar calculations for a system of three nucleons.

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USSR UDC: 532.517.4

FILIPPOV, G. V., SHAKHOV, V. G.

"Turbulent Flow Induced by Rotation of Two Coaxial Cylinders"

Tr. Kuybyshev. aviats. in-t (Works of the Kuybyshev Aviation Institute), 1971, vyp. 35, pp 89-92 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9B1113)

Translation: A comparison is drawn between calculations of the characteristics of turbulent flow between two rotating cylinders in accordance with two hypotheses on the relation between turbulent friction stresses and averaged flow velocities: on the preservation of Prandtl momentum (first hypothesis) and on conservation of the moment of momentum ("second") which is analytically represented in the form: $|\tau|/\rho = (\varepsilon/r)\partial(rv)/\partial r$, where τ is the friction stress, v is the averaged peripheral velocity, r is the distance from the axis of the cylinders, ρ is the density of the liquid, ε is the kinematic (turbulent) coefficient of viscosity which varies as a function of distance from the wall.

For the case where the inner cylinder rotates while the outer cylinder is stationary, equations are derived using the "second" hypothesis which

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FILIPPOV, G. V., SHAKHOV, V. G., Tr. Kuybyshev. aviats. in-t, 1971, vyp. 35, pp 89-92

determine the distribution of velocities and drag law, and which are compared with analogous equations derived in accordance with the "first" hypothesis. In the case of Couette flow (when r_1 and $r_2 \to \infty$, where r_1 and r_2 are the radii of the inner and outer cylinders), the computational formulas derived on the basis of the "first" and "second" hypotheses coincide completely. If the radius of the outer cylinder is finite, then the "second" hypothesis leads to simpler computational expressions for the drag law and the velocity profile; the discrepancy between the drag in accordance with both hypotheses and experimental data is no more than 5%. The velocity profile and drag found by means of the "second" hypothesis are not applicable to calculation of flow induced by rotation of a cylinder in an unbounded space. Bibliography of 5 titles. B. M. Yegupov.

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USSR UDC 551.482.2:551.311.21

POLIKARPOV, G. G., YEGOROV, V. N., IVANOV, V. N., TOKARIVA, A. V., and FILIPPOV, I. A., Institute of Biology of the Southern Seas, Academy of Sciences USSR

"Oil Fields as an Ecological Niche"

Moscow, Priroda, No 11, 1971, pp 75-78

Abstract: Observations are made on the formation, behavior, distribution and composition of oil "aggregates" collected from the surface and near-surface layers of the Central Atlantic during the 1970 cruise of the research vessel Akademik Vernadskiy. Five size groups were distinguished, ranging from those under 1 mm to 8 mm in diameter, the latter being the most numerous. Many are overgrown with periphyton, blue-green algae, diatoms, and crustaceans. By moving freely over the water in response to wave and wind, these oil aggregates can serve as indicators of currents and processes of horizontal mixing of the surface layers. Experiments on the capacity of the aggregates to concentrate cerium, ruthenium, and zinc from seawater showed them to be excellent absorbents of these elements. This fact plus the presence of biogenous elements on the surface of the aggregates and maximum exposure to light and oxygen create favorable conditions for the development of periphyton.
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POLIKARPOV, G. G., et al., Priroda, No 11, 1971, pp 75-78

Hence, there will be an increase in the abundance of those hydrobionts which require a floating substrate. The results is likely to intensify the cycle of matter in the plankton-neuston complex and ultimately determine the fate of the oil aggregations themselves.

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-USSR- UDC: 621.313.322-81:66.045.5

ROZENFEL'D, L. M., SERDAKOV, G. S., CHEKHOVICH, V. Yu., and FILIPPOV, I. F.

"Experimental Rack for Investigating Low-Temperature Vaporization Cooling for Turbogenerator Piping"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 50-57

Abstract: This article represents part of the continuing search for new systems of cooling turbogenerators. A description is here given of an important stage in cryogenic cooling of the electrical windings in the generator by direct Freon vaporization in the form of an experimental rack for investigating this type of cooling. It consists of a measuring section, a double system of cooling, a power supply block, blocks for readoff, recording, and writeout devices, automation and protection systems, and a control panel. A drawing for the overall system is given together with a photograph of the rack and the measuring block. A diagram for the structure of the heating system and the temperature sensors plus a schematic of the power supply block are also presented. The experiments performed with the aid of the device are described; they can determine the temperature distribution of

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USSR UDC: 621.313.322-81: 66.045.5

ROZENFEL'D, L. M., et al, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR--Seriya Tekhnicheskikh Nauk, No 3, 1972, pp 50-57

on the conductor wall surfaces and the current of the working fluid inside the channel, the hydraulic resistance distribution over the length, and other factors. The authors are associated with the Institute of Thermal Physics, Novosibirsk.

2/2

Nuclear Science and Technology

UDC 621.039.566:669.054(088.8)

USSR

ARNOL'DOV, M. N., IVANOVSKIY, M. N., FILIPPOV, I. T., and SHMATKO, B. A.,

"A Crystallizer-Accumulator"

USSR Authors Certificate No 275247, filed 13/11/68, published 22/10/70 (translated from Referativnyy Zhurnal-Yadernyye Reaktory, No 3, 1971, Abstract No 3.50.31 P)

Translation: A crystallizer-accumulator is patented for purification of liquid metal heat-transfer media of impurities and corrosion products in a system consisting of a cooled body and pipe lines for supply and drainage of the heat-transfer medium. In order to improve purification by creating agitation of the flow of the heat transfer-medium, the internal surface of the cooled body carries a number of parallel ribs made of a material with high heat conductivity, equipped with an aperture for passage of the heat-transfer medium.

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1/2 057 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--MECHANISM OF THE INFLUENCE OF PULSATING BLOWING ON THE INTENSITY OF THE CONVERTER OXIDATION OF IMPURITIES -U-

AUTHOR-(04)-MINAYEV, YU.A., GRIGORYAN, V.A., BERMAN, L.I., FILIPPOV, K.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(4), 31-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--METAL OXYGEN CONVERSION, OXIDATION KINETICS, SLAG, GAS JET, NOZZLE FLOW, EMULSION, VANADIUM, GAS DYNAMICS, PERIODIC PULSE/(U)NTMK CONVERTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0805 STEP NO--UR/0148/70/013/004/0031/0033

CIRC ACCESSION NO--AT0132902

UNCLASSIFIED

2/2 057 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132902

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. OXIDN. OF IMPURITIES IN A CONVERTER BATH IS DETD. BOTH BY THE CHARACTERISTICS OF THE KINETIC DIFFUSION CONDITIONS AND THE INTENSITY OF THE FEEDING OF THE OXIDIZER, AS WELL AS BY THE FORMATION DYNAMICS OF THE SLAG METALLIC EMULSION. THE DYNAMICS OF THE FORMATION OF EMULSION WAS STUDIED ON A NO. OF MELTS IN A NTMK 100 TON CONVERTER. INTERMEDIATE TIPPING OF THE CONVERTER WAS DONE TO SELECT THE SAMPLES FOR DETG. THE REGULUS METAL CONTENT IN THE SLAG LAYER. THE CONTENT OF THE ASSAY BUTTONS WAS COMPARED WITH THE RATE OF TRANSITION OF V INTO SLAG AND IWTH THE CONSUMPTION OF THE OXIDIZER. IN CASE OF ALL 8 TEST SAMPLES DURING THE COURSE OF THE ENTIRE PROCESS THE RATE OF TRANSITION OF V INTO THE SLAG VARIES IN ACCORDANCE WITH THE CHANGE IN THE NO. OF THE ASSAY BUTTONS. THUS, DURING OXIDN. OF V IN THE CONVERTER THE RATE OF TRANSITION OF THE COMPONENT INTO THE SLAG IS ESSENTIALLY DETD. BY THE DYNAMICS OF EMULSIFYING OF THE PHASES. THE PARAMETERS CHARACTERIZING THE EMULSION DEPEND ON THE PHYS. CHEM. PROPERTIES OF THE METAL AND THE SLAG, AS WELL AS ON HYDRODYNAMIC CONDITIONS. IN THE LATTER CASE, THE MANNER IN WHICH THE BLOWING IS PROVIDED IS THE DETG. FACTOR. IN ORDER TO EXPLAIN THE MECHANISM OF THE EFFECT OF PULSATING BLOWING ON THE KINETICS OF THE TRANSITION OF THE IMPURITIES, THE EXPTS. WERE PERFORMED ON A COLD MODEL OF THE CONVERTER. WATER WAS USED AS THE MODEL FOR THE METALLIC PHASE, AND PETROLATUM OIL AS THE MODEL FOR THE SLAG. THE APPLICATION OF PULSATING BLOWING LEADS TO A DECREASE IN GAS CONSUMPTION AND TO AN INCREASE IN THE AV. PRESSURE LEVEL AT THE NOZZLE.

UNCLASSIFIED

UDC 8.74

USSR

FREYDZON, I. R., FILIPPOV, L. G.

"Mathematical Models in Ship Training Complexes"

Matematicheskiye modeli v sudovykh obuchayushchikh kompleksakh (Mathematical Models in Ship Training Complexes), Leningrad, Sudostroyeniye Press, 1972, 352 pp, ill. 1 r. 44 k. (from RZh-Kibernetika, No 9, Sep 72, Abstract No 9V647K)

No abstract

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USSR UDC 621.391.2

SMOL'YANIKOV, V. M., SOROCHINSKIY, M. V., FEOFANOV, Yu. V., FILIPPOV, L. I.

"Principles of Identifying Signal Transmission Channels"

Moscow, Radiotekhnika i Elektronika, vol 16, No 12, Dec 71, pp 2215-2224

Abstract: Three principal classes of methods of identifying signal transmission channels are considered: direct probing, correlation-filter methods, and methods of comparison with a model. The second class, correlation-filter methods, is analyzed in the greatest detail. Some old and new or modified block diagrams for methods in this class are synthesized by systematic analysis of a complex two-dimensional autocorrelation function of the probing oscillation in the channel. Realization of the direct method of probing by δ-pulses involves practical difficulties. The methods of comparison with a model are based on utilizing the principle of physical modeling. Five figures, bibliography of six titles.

USSR

ARUTYUNOV, A. V., BANCHILA, S. N., FILIPPOV, L. P., Moscow State University imeni M. V. Lomonosov

"Measurement of the Electrical Conductivity of Tin in the Temperature Range 1000-2500°K"

Moscow, Teplofizika vysokikh temperatur, No. 3, May/Jun 72, pp 547-550

Abstract: A technique is described for measuring electrical conductivity that makes it possible to obtain fairly reliable data in the temperature range 1000-2500°K and is based on the use of high-frequency induction heating of metal ampoules filled with the liquid metal to be studied. It is noted that the study of the specific electrical conductivity of liquid metals is an important element in investigating the nature of the liquid-metal state of a substance, but that the problem of the electrical resistance of liquid metals has been little studied up to the present time. The use of induction heating in the measurement device makes it possible to obtain a homogeneous temperature field in the heated sample and the device is convenient to use because of its low inertia, so that measurements can be carried out fairly rapidly. A description and circuit

USSR

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002200810016-1"

diagram of the device are given. A basic source of systematic error in measuring the specific resistance was the error in determining the geometry of the ampoule. The total maximum systematic error of the experiment varied from ~1 to ~2% in the temperature range 1000-2500°K. The electrical conductivity of tin of the following composition (in wt. %) was measured: 99.9995 Sn, $5 \cdot 10^{-5}$ Sb, 10^{-5} (Fe, Co, Au, Ag, Zn, Ar), 10^{-6} (Cu, Bi, Al). The results are shown graphically. The data agrees with the data of Cusac, Roll, and Motz within the limits of the systematic error of the experiment. The least squares method was used to obtain the following temperature dependence for the electrical resistance:

$$\rho = 54.42 - 0.661\ 10^{-2}\ T + 1.522 \cdot 10^{-5}\ T^2 - 2.346 \cdot 10^{-9}\ T^3.$$

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USSR UDC: 536.711/.715

ATALLA, S. R., BANCHILA, S. N., and FILIPPOV, L. P., Moscow State University imeni M.V. Lomonosov

"Studying a Complex of the Thermal Characteristics of Liquid Metals at High Temperatures"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 1, Jan-Feb 1972, pp 72-75

Abstract: This article was presented at a conference on transfer properties in electron melts held during March 1971 at the Institute of Semiconductors of the USSR Academy of Sciences, Leningrad. The authors describe an improved unit for measuring the thermal conductivity and heat capacity of liquid metals in the 1100-2100°K temperature range. The unit is based on the utilization of the method of radial temperature waves during the variable, periodic heating of a specimen by electron bombardment. Results are given from the study of liquid indium, neodymium, and cerium. Values obtained for the Lorentz number of liquid neodymium are close to the theoretical value of $2.45 \cdot 10^{-8}$ w·ohm/degree^2. Within the studied range, the temperature around the melting point holds with respect to the Wiedemann-Franz-Lorentz law. The coefficient of heat conductivity for liquid indium shows a strong dependence on temperature. Original article: two formulas, three figures, and 11 bibliographic entries.

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USSR UDC 536.242+3:546.832

ARUTYUNOV, A. V., BANCHILA, S. N., and FILIPPOV, L. P., Moscow State University, Kaliningrad Technical Institute of the Fish Industry and Fisheries

"Thermal, Electric, and Emissive Properties of Hafnium in the High-Temperature Range"

Moscow, Teplofizika Vysokikh Temperatur, Vol 10, No 2, Mar-Apr 72, pp 425—428

Abstract: Recent results of multiple investigations by the method of variable induction heating of thermal, electric, and emissive properties of hafnium (by wt. %: 99.3 Hf; 0.65 Zr; 0.04 SiO_2; 0.006 Al_2O_3) in the temperature range over 1000 °K are discussed. The investigated Hf-specimen, 98 mm long and 10 mm in diam., was calcined in vacuum by 1900 °K for ~2 hrs. The results are discussed by reference to tabulated data and diagrams showing the temperature dependences of the heat conductivity λ, the heat capacity c_p, the specific electric resistance ρ, and the monochromate coefficient $\varepsilon_{\lambda,T}(\lambda=0.65\mu)$, in

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USSR

ARUTYUNOV, A. V., et al., Teplofizika Vysokikh Temperatur, Vol 10, No 2, Mar-Apr 72, pp 425-428

comparison with data of other authors. Some characteristic properties of titanium, zirconium, and hafnium are singled out. Two illustr., one table, seven biblio. refs.

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--DETERMINATION OF THE HEAT CAPACITY BY A RADIAL TEMPERATURE WAVE METHOD -U-

AUTHOR-(02)-YURCHAK, R.P., FILIPPOV, L.P.

COUNTRY OF INFO--USSR

SOURCE--IZMER. TEKH. 1970, (3), 41-2

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT CAPACITY, IRON, LEAD, LIQUID METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1132 STEP NO--UR/0115/70/000/003/0041/0042

CIRC ACCESSION NO--AP0136552

UNCLASSIFIED

2/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0136552

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A METHOD FOR THE DETN. OF HEAT CAPACITY FROM PERIODICALLY PULSING TEMP. CURVES IS DESCRIBED. THE STRAIGHT INCREASING OR DECREASING LINES, CORRESPONDING TO THE CONST. SPEED OF HEATING, ARE USED FOR THE CALCN. OF HEAT CAPACITY INSTEAD OF USING THE TEMP. AMPLITUDE. THE HEAT CAPACITY C SUBP IS CALCD. BY MEANS OF THE FOLLOWING FORMULA: SHOWN ON MICROFICHE. THE RESULTS OBTAINED IN THIS WAY BE TESTING ARMCO FE AND LIQ. PB SAMPLES AGREED WITH THOSE OF THE PREVIOUS CALCN. METHOD.

UNCLASSIFIED

USSR UDC: 621.396.62:621.391.83

SMOL'YANINOV, V. M., FILIPPOV, L. V.

"Resistance to Interference of an Incoherent Receiver"

Moscow, Radiotekhnika i Elektronika, Vol 26, No 9, Sep 71, pp 1652-1657

Abstract: The authors analyze the interference resistance of an incoherent receiver in multichannel systems with frequency diversity of channels, using a suboptimum method of controlling lumped interference. This method involves cutting off partial frequency channels affected by strong lumped interference. The case of fluctuations of all frequency components "in unison" with Rayleigh amplitude distribution is considered. A formula is derived for the probability of errors, and the resistance to interference of wide-band and narrow-band systems is compared. The authors thank L. F. Borodin for a number of comments made during the discussion of this paper.

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/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70

TLE--SHORT TERM CREEP OF NICKEL IN A HIGH SPEED AIR FLOW -J-

THOR-(05)-SOROKIN, V.G., BOGACHEV, I.N., VEKSLER, YU.S., LESNIKOV, V.P., FILIPPOV, M.A.

OURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (3), 2-5

ATE PUBLISHED-------70

UBJECT AREAS--MATERIALS

OPIC TAGS--NICKEL, CREEP RESISTANCE, AIR FLOW, OXIDE FILM, CRYSTAL DISLOCATION PHENOMENON

CNTRCL MARKING--NO RESTRICTIONS

OCUMENT CLASS--UNCLASSIFIED

ROXY REEL/FRAME--1989/1935 STEP NO--UR/0129/70/000/003/0002/0005

IRC ACCESSION NO--AP0103264

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--02OCT70
IRC ACCESSION NO--AP0108264
BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AT 700-800DEGREES THE RESISTANCE TO CREEP OF TECHN. PURE NI IS HIGHER WHEN TESTED IN AIR THAN WHEN TESTED IN VACUUM. THIS IS DUE TO THE STRENGTHENING INFLUENCE OF AN OXIDE FILM WHICH PREVENTS THE EMERGENCE OF DISLOCATIONS ONTO THE FREE SURFACE. IN A FAST AIR FLOW THE CREEP OF NI IS STRONGTLY ENHANCED BY THE CORROSIVE EROSIVE ACTION. THE TIME TO RUPTURE IS SHORTENED.

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USSR

UDC 669.24:620.172.251.2

SOROKIN, V. G., BOGACHEV, I. N., VEKSLER, YU. G., LESNIKOV, V. P. and FILIPPOV, M. A.

"Short-Time Creep of Nickel in a High-Velocity Air Stream"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1970, pp 2-5

Abstract: Short-time creep of nickel in a vacuum, in a medium at rest, and in a high-speed air stream (M = 1.6) was experimentally investigated at 700-800°C under a stress of 2-4 kg/mm^2. Experiments were conducted on samples made of technically pure NP-I nickel in an aerodynamic wind tunnel intended for investigating specific strength, short-time creep, and erosion resistance metals and alloys, at high temperatures and at air stream velocities up to Mach 4. The magnitude of deformation and time were counted from the time of sample heating up to a given temperature. The heating time was 30±5 sec. The results show that at 700-800°C the creep resistance of technically pure nickel in air is higher than in vacuum. In a high-velocity air stream the creep increases sharply as a result of the corrosion-erosion effect of the air stream. 2 figures, 1 table, 7 references.

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UDC 628.33/.36 + 541.15

USSR

DZHAGATSPANYAN, R. V., GERSHENOVICH, A. I., and FILIPPOV, M. T.

"Radiation Purification of Sewage"

Moscow, Zhurnal Vsesoyuznogo Khimicheskogo Obshchestva Imeni D. I. Mendeleyev, Vol 17, No 2, 1972, pp 177-184

Abstract: A review with 12 references devoted to the utilization of high energy radiation in purification of sewage. It covers the questions of the acceleration of the sedimentation of suspensions, removal of phenols, decomposition of cyanides, radiation disinfection, and purification of the sewage from synthetic surfactant materials resistant to biological oxidation. Economical cost analysis of the method has been covered on the basis of literature reports. Synergism between the radiation and biological oxidation methods was discussed as well as the sources of radiation adaptable to sewage purification.

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USSR

UDC 621.317.64

FILIPPOV, N.A.

"Some Questions in the Construction of Digital Measuring Instruments With a Given Limiting Relative Error Over the Entire Measurement Range"

Tr. Frunz. politekhn. in-ta (Works of Frunze Polytechnic Institute), 1971, vyp. 50, pp 95-106 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A358 by B. U.)

Translation: The article considers the analytical tabular determination of a set of working measures to make possible measurment with a given limiting relative error over the entire range, as well as considering the determination of a set of working measures to make possible measurement with a given relative error spread over the entire range for measurement results, which are the mathematical expectation of measured quantities subject to a uniform distribution law. There is a discussion of practical questions in the construction of digital measuring instruments with an arbitrarily given relative error over the entire measurement range. 2 illustrations. Bibliography with 2 titles.

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USSR UDC: 8.74

FILIPPOV, N. A.

"Some Problems of Constructing Digital Measurement Devices With Given Maximum Relative Error Throughout the Entire Measurement Range"

Tr. Frunz. politekhn. in-ta (Works of Frunze Polytechnical Institute), 1971, vyp. 50, pp 95-106 (from RZh-Kibernetika, No 1, Jan 71, Abstract No 1V970)

[No abstract]

USSR

UDC: 8.74

FILIPPOV, N. A.

"On Construction of Analog-Digital Converters With Constant Relative Error"

Tr. Frunz. politekhn. in-ta (Works of Frunze Polytechnical Institute), 1971, vyp. 50, pp 95-106 (from RZh-Kibernetika, No 1, Jan 72, Abstract No 1V971)

[No abstract]

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--KINETICS OF ETHYL ACRYLATE TRANSESTERIFICATION BY ALLYL AND ISOAMYL ALCOHOLS ON KU-2-8 CATION EXCHANGER -U-

AUTHOR-(03)-FILIPPOV, N.A., YAVSHITS, G.P., REYKHSFELD, V.O.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 467-70

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ESTERIFICATION, ACRYLATE, ALCOHOL, CATION EXCHANGE RESIN, DEHYDRATION, ACTIVATION ENERGY, DIELECTRIC CONSTANT, REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1421 STEP NO--UR/0080/70/043/002/0467/0470

CIRC ACCESSION NO--AP0116868

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0116868
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EFFECT OF TEMP. AND QUANTITY OF CATION EXCHANGER ON THE RATE OF TRANSESTERIFICATION OF ET ACRYLATE (I) BY ALLYL (II) AND ISOAMYL (III) ALCS. AND ON THE RATE OF DEHYDRATION OF II WAS STUDIED AT 60-90DEGREES. RATE CONSTS. WERE CALCD. THE ACTIVATION ENERGIES OF THE DEHYDRATION OF II AND OF TRANSESTERIFICATION OF I BY II, AND OF TRANSESTERIFICATION OF I BY III WERE 24, 15.2, 14.6 KCAL-MOLE, RESP. RATE CONSTS. INCREASED LINEARLY WITH QUANTITY OF THE CATION EXCHANGER. LINEAR DEPENDENCE WAS FOUND BETWEEN LOGARITHM OF LIMIT SORPTION OF THE ALCS. BY CATION EXCHANGER AND DIELEC. CONSTS. OF THE ALCS. RELATION IS CONSIDERED BETWEEN DIELEC. CONST., LIMIT SORPTION, AND REACTION ACTIVITY OF THE STUDIED ALCS. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENOSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

USSR UDC: 550.834

BALASHKAND, M. I., FILIPPOV, N. G., YEFIMENKO, M. D., CHEN, O. L., MAYOROV, V. V., KRASNOPOL'SKIY, A. D., SOLODILOV, L. N., YEVDOKIMOV, G. S., Ramenskoye Department of the All-Union Scientific Research Institute of Geophysical Methods of Prospecting

"A Device for Emission of a Seismic Signal"

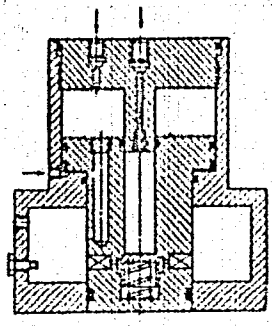
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 8, Mar 72, Author's Certificate No 330407, Division G, filed 20 Jan 70, published 24 Feb 72, p 142

Translation: This Author's Certificate introduces: 1. A device for emission of a seismic signal. The device contains compressed-air and liquid-fuel supply systems and a pneumatic chamber with movable piston which opens and closes the outlet port of the chamber. As a distinguishing feature of the patent, the compressed-air discharge energy is increased and the heat and force load on the chamber is reduced by fitting the movable piston with atomizers which break up the fuel in the compressed air during gas exhaust and by attaching a device for ignition of the fuel mixture to the chamber housing. 2. A modification of this device distinguished by the fact that

USSR

BALASHKAND, M. I. et al., USSR Author's Certificate No 330407

the movable piston has a channel filled with fuel and communicating with the atomizer through a check valve, and the cover of the chamber has a rod which enters the channel of the piston and feeds fuel into it through the chack valve. 3. A modification of this device distinguished by the fact that the attachment for igniting the fuel mixture is made in the form of a wedge.



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1/2 027 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--DIRECT OBSERVATION OF THE INTERFERENCE BETWEEN INTERNAL CONVERSION AND PHOTOEFFECT IN DYSPROSIUM 161 -U-

AUTHOR-(04)-LUKASHEVICH, I.I., GOROBCHENKO, V.D., SKLYAREVSKIY, V.V., FILIPPOV, N.I.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETT. A 1970, 31(3), 112-13

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--RESONANCE ABSORPTION, GAMMA IRRADIATION, ENERGY SPECTRUM, EXCITATION CROSS SECTION, PHOTOELECTRON, MOSSBAUER SPECTRUM, DYSPORSIUM ISOTOPE, INTERFERENCE MEASUREMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1982/0660 STEP NO--NE/0000/70/031/003/0112/0113

CIRC ACCESSION NO--AP0052120

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0052120

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN ENERGY DEPENDENCE OF THE CROSS SECTION FOR CREATION OF CONVERSION E DURING THE RESONANT ABSORPTION OF GAMMA RAYS BY PRIME161 DY NUCLEI IN METALLIC DY HAS BEEN INVESTIGATED. THE ASYMMETRY OF THE MOESSBAUER LINE SHAPE OBSD. IN EXPT. IS CONNECTED WITH THE PRESENCE OF AN INTERFERENCE BETWEEN PROCESSES OF PHOTOEFFECT AND INTERNAL CONVERSION. FACILITY: ACAD. SCI., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC: 533.9...16

FILIPPOVA, T. I., FILIPPOV, N. V.

"Plasma Focus as a Pulsed Source of Neutrons of Synthesis Reactions"

Kiev, Neytron. fizika--sbornik (Neutron Physics--collection of works), Ch. 2, "Nauk. dumka", 1972, pp 194-200 (from RZh-Fizika, No 6, Jun 73, abstract No 6G340)

Translation: The paper presents the physical principles of operation of an installation of the "plasma focus" type. Data are given on the number of neutrons per pulse, the pulse duration, and the pulse repetition rate. A curve is plotted for the neutron yield as a function of the energy reserve of the installation. The resultant curve is extrapolated to 10^8 j.

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USSR

UDC 532.53:535-14

UKHANOV, YE. V. and FILIPPOV, O. K.

"The Optical Properties of a Xenon Arc in the Far-IR Region of the Spectrum"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 2, Feb 73, pp 27-29

Abstract: Experiments on a xenon arc in a lamp with a metal housing and a window outlet for long-wave IR radiation are presented. All spectral measurements were made with a DIKS-3 long-wave IR spectrophotometer. Measurements on the plasma brightness temperature by comparison with the PRK-4 and globular lamps previously calibrated showed that from 50 to 120 microm the temperature increases sharply with increasing wavelength, but above 120 microm it changes very little. Measurements of plasma transmission using an image of the globar lamp projected on the xenon arc lamp showed that the transmission decreased with an increase in current strength or wavelength. The data made possible the calculation of the true mean plasma temperature, found to be 5100, 5500 and 5300°K for 60, 70 and 90 microm respectively.

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EQUIPMENT
Measuring, Testing, Calibrating

USSR

UDC 551.510.62:539.293

TAGANOV, O. K., PROSKURYAKOV, M. V., KHAR'YUZOV, V. A. and FILIPPOV, O. K.

"The Determination of Optical Constants of Semiconductor Glasses in the Spectral Region 1.1 to 1.6 mm"

Leningrad, Optiko-Mekhanicheskaya Promyshlennost', No 2, Feb 73, pp 62-63

Abstract: A method for experimentally determining the optical constants of semiconductor glasses in the submilimeter region of the spectrum, using a prism at minimum deflection for determining the refraction coefficient, a plane-parallel plate for the absorption coefficient, a goniospectrophotometer, an optical acoustic detector and a reverse wave lamp is presented. The results obtained make it possible to calculate the absorption coefficient and the refraction. As an example of the use of this method the results of the measurement of a sample of chalcogenite glass are presented.

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USSR

UDC 535.891:621.327

UKHANOV, YE. V., TAGANOV, O. K., FILIPPOV, O. K., Candidate of Sciences

"Gas Discharge Source of Long-Wave IR-Radiation"

Leningrad, Optiko-mekhanicheskaya promyshlennost', No. 7, Jul 71, pp 31-33

Abstract: The design of an arc lamp with a metal shell, the internal surface of which is in the form of an ellipsoid of rotation, is described and results of spectral experiments are given. It is shown that the brightness of the long-wave IR-radiation of this tube is three times higher than that of a globar. The brightness of the radiation in the spectral region 50-200 μ of the gas discharge tube with the metallic shell exceeded the PRK-4 tube and a globar. The increased brightness of this tube is explained by the fact that its design makes it possible to apply windows for the release of radiation that have good transmission in the working region of the spectrum. In this case the window is made of low-pressure polyethylene with a thickness of 2.5 mm. The experiment showed that a window of polymer material can be used for tens of hours and is easily replaced. The fabrication of the tube does not require complex electro-vacuum operations, such as welding electrodes to quartz or glass and it can be

UKHANOV, YE. V., et al, Optiko-mekhanicheskaya promyshlennost', No. 7, Jul 71, pp-31-33

produced in a laboratory shop. It is hoped that with its improved characteristics the tube will find application in long-wave infrared spectral devices and as a weakly selective source for other studies in the far-infrared region.

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USSR

UDC 575.150

SEVERIN, S. Ye., FILIPPOV, P. P., and KOCHETOV, G. A., Interfaculty Laboratory of Bio-organic Chemistry, Moscow State University

"Metalloenzymes"

Moscow, Uspekhi Sovremennoy Biologii, Vol 69, No 2, Mar/Apr 70, pp 241-260

Abstract: This is a review article with 112 references, covering the function of metals in enzyme catalysis. The following topics: classification of metalloenzymes, the effect of metals on the relationship between enzymes and substrates, participation of metals in the complex formation of enzyme-coenzyme, the effect of metals on the conformation of enzymes, the effect of metals on the quaternary structure of enzymes, and the metal content in enzymes, are discussed. The importance of studying the properties and the mechanism of action of metalloenzymes is stressed.

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TITLE--EFFECT OF DIVALENT METALS ON THE POSITION OF THE PH OPTIMUM OF THE TRANSKETOLASE REACTION -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ACTIVE TRANSKETOLASE (CF. KOCHETOV, ET AL. 1969) IN A SYSTEM WITH SEDOHEPTULOSE 7,PHOSPHATE BEING FORMED FROM MIXED PENTOSE PHOSPHATES WAS SUBJECTED TO THE ACTION OF DIVALENT METAL IONS SELECTED FROM MG, MN, CA, ZN, AND NI. IT WAS SHOWN THAT IN EACH CASE THERE WAS MAX. OF ACTIVITY OF THE ENZYME AT A SPECTIFIC PH AND THIS MAX. SHIFTED SOMEWHAT WITH CONCN. OF THE CATION. INCREASING CONCNS. OF CA, ZN, AND NI DISPLACED THE OPTIMUM PH FROM ACID TO BASIC SIDE. AT OPTIMUM CONCN. OF THE DIVALENT IONS THE OPTIMUM PH OF THE ENZYME IS IN THE PH 7.6-8 REGION ALMOST INVARIABLY. THUS, THE DIFFERENCE IN THE ACTIVATING ABILITY OF THE METAL IONS CANNOT BE EXPLAINED BY VARIOUS VALUES OF THE OPTIMUM PH. MECHANISMS RESPONSIBLE FOR THE RESULTS ARE DISCUSSED AT LENGTH. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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